



UKSEDS

ANNUAL REPORT 2016-17



MARCH 2017

2017 has been an incredible year for UKSEDS. We have run more competitions, funded more projects, and hosted more events than ever before. Our careers website, SpaceCareers.uk, has seen a doubling of visitor numbers and a dramatic increase in the number of job posts. Our volunteer team – the Staff and Executive Committee – has jumped in size from 22 to 36, in addition to our pool of 20 outreach volunteers.

All of this has been made possible by generous support from industry, our partners, and the UK Space Agency. Thales Alenia Space UK have sponsored not only our annual conference, but also our new Lunar Rover Competition, providing funding and technical advice; Airbus Defence and Space UK has collaborated with us again to host their Student Presentation Competition; and the UK Space Agency has awarded us our largest ever Space for All grant, enabling us to do expand our outreach efforts even further.

I am particularly pleased to have begun a partnership this year with the Society of Satellite Professionals International (SSPI), who are keen to tackle the growing skills shortage in the industry by engaging with the next generation.

Our larger pool of volunteers has freed up the Executive Committee to plan more effectively for the future, putting in place a new strategy, and rewriting our constitution to put us on a sound footing for many years to come.

We have also been able to engage in advocacy: making an official response to the UK's Space Agency call for ideas and evidence to help implement the National Space Policy, and attending a number of policy events to represent student views.

As I finish my tenure as Chair, after three years on the Executive Committee and almost five as a member of UKSEDS, I am astounded by how far we have come and how much we have achieved since I joined. It has been a privilege to lead an incredible team of dedicated and hardworking young people, and I am confident that they will take UKSEDS further and higher than ever before.



Joseph Dudley
Chair



Our Mission

Our mission is to engage young people with the space sector.

We have a vision of a thriving UK space sector in which young people play an active role.

We want to be an organisation that is an integral part of the UK's space sector, and that is recognised and engaged with as such by industry, government, and academia.

For students we want to be the go to place for space careers information, and provide a wide range of opportunities to gain new skills and engage with the sector.

For the sector we want to be the organisation that others come to when they are looking to recruit and engage with students.

Legal Changes

New Constitution

A new constitution is being proposed at this year's Annual General Meeting to replace both the current constitution and the Rules & Regulations.

Membership

Membership would no longer be open to anyone, instead only current and recent students and apprentices could be members. Those who want to support us but would be ineligible for membership could become Friends, joining a new association of Alumni and Friends.

Branches would no longer be limited to being university societies, but could be any organisation run by students or young people, allowing us to reach out to apprentices, sixth-formers, and young graduates.

Boards

The Board of Trustees has been significantly expanded to include six Non-Executive trustees, who will be drawn from outside of our membership, and will have oversight of the Executive Committee. They will be nominated by the existing Trustees and confirmed by the Membership.

This change is intended to create a distinction between those running of UKSEDS day-to-day (the Executive Committee and Staff) and those with oversight of the running, to ensure our long term stability and improve how we are perceived within the space community, particularly by industry and government. Votes that require Board approval would require a majority of both the Executive and Non-Executive trustees separately.

Additionally there will be a Board of Advisors who will provide expert advice in specific areas, and will be the pool from which Trustees are chosen.

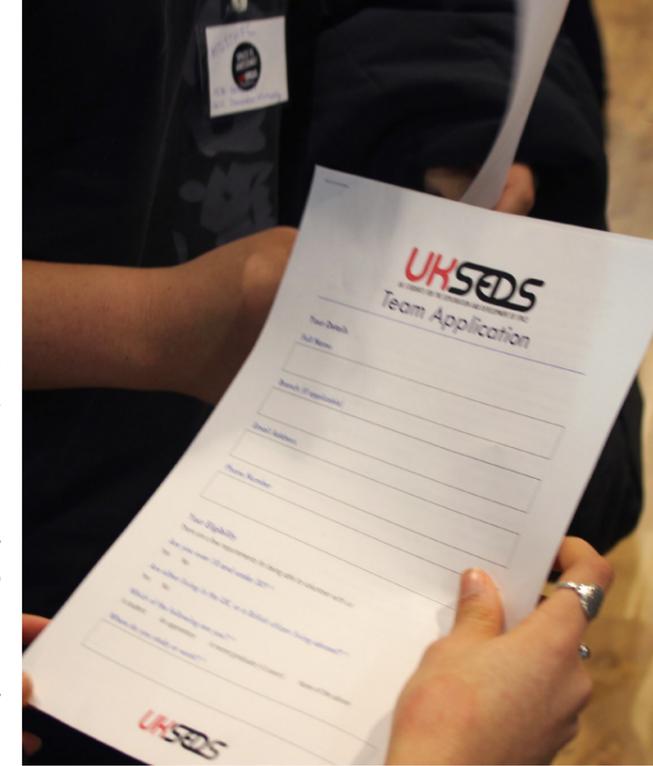
Wording

The new constitution contains all the relevant sections of the Charity Commission's model constitution, and several key sections of the existing constitution's text, such as our charitable objectives, have been rephrased to make them clearer.

New Legal Structure

The changes to the constitution are being proposed alongside a legal restructuring of UKSEDS from being an unincorporated charity to being a Charitable Incorporated Organisation (CIO). We have received advice about this process from Milbank, lawyers who are generously giving us pro-bono legal support.

This change will have very little effect on our day-to-day operations, but will provide us and our Trustees with greater legal authority and protection. UKSEDS will benefit from being a separate legal personality, allowing it to contract in its own name and limiting the Trustees' personal liability.



Education

Our education programme aims to advance university students' knowledge, skills, and experience so that they are equipped to be active members of the UK's space sector.

The core parts of this programme are our careers website and our events, competitions, and projects, which provide opportunities to gain new skills and experience, both 'soft' and technical.

A key objective for the year was to increase the range of topics and locations of our events, to demonstrate the breadth of the sector and enable as many students as possible to learn.



SpaceCareers.uk

Our careers website, started in December 2015, continues to go from strength to strength. Views have more than doubled, and our careers team has dramatically increased the number of positions being advertised to over 100 across the year.

The website is rapidly becoming the go-to place for space careers information, and now receives hundreds of visitors every day, as well as regular enquiries from school and university career services and students making decisions about their futures.

More than 6000 SpaceCareers.uk flyers have been distributed this year, at airshows, careers fairs, schools and museums across the country.

“60% of Thales Alenia Space UK's last graduate intake were found through SpaceCareers.uk”

Josh Western

Business Development & Marketing
Thales Alenia Space UK

Events Programme

Reinventing Space Careers Event

November 2016 | London | 60 attendees

We continued our successful collaboration with SGAC and the British Interplanetary Society for a third year, organising the Reinventing Space Careers Event at RISpace 2016 in London. Attendees heard from Ellen Stofan, NASA's Chief Scientist, and a panel of industry representatives who discussed their personal experiences in the space sector. This was followed by our first speed mentoring session, where attendees split into small groups and talked with industry representatives individually.

Computer Aided Engineering Workshop

November 2016 | Sheffield | 18 attendees

Our first Computer Aided Engineering workshop gave attendees an opportunity to learn more about CAE software and how it is used in the design processes in the space industry.

The event was organised in association with MSC Software, a company specialising in engineering software, who generously provided expertise and free use of their software.

Radio Workshop

February 2017 | Sheffield | 17 attendees

Building on the success of last year's radio workshop, we gave students another opportunity to learn about the use of radio technology and its applications for both space and hobbyist communications, in collaboration with the Radio Society of Great Britain.

Attendees were able to try their hand at over-the-air 'contacts' with radio amateurs in the area, and compete in a 'fox hunt' using directional antennas to hunt down radio sources hidden nearby.

A second radio workshop is scheduled for March in Bath.



Mission Design Workshop

February 2017 | Leicester | 21 attendees

Our first Mission Design workshop, in partnership with lecturers at the University of Leicester, covered the basics of astrodynamics and gave attendees an opportunity to simulate basic orbital manoeuvres and burns using NASA's General Mission Analysis Tool (GMAT).

National Student Space Conference

March 2017 | Exeter | 200+ attendees

Our National Student Space Conference is the premier student space event in the UK, bringing together students, academics, and professionals from across the world to share knowledge and network.

This year's event takes place at the University of Exeter and includes keynote speakers Dr David Parker, Director of Human Spaceflight and Robotic Exploration at the European Space Agency, and Dr Carol Mundell, Professor of Extragalactic Astronomy and Head of Physics at the University of Bath, as well as discussion panels on "Exploration vs Exploitation" and space sector startups.

For the second year running we are collaborating with Airbus Defence and Space to bring their presentation competition to the conference.



Competitions

National Rocketry Championships

10 teams

We launched our 4th National Rocketry Championships (NRC), this year, with 10 teams competing to design and build mid-power amateur rockets with the goal of reaching the greatest apogee. Many branches use this competition to introduce students to their activities and projects.

SSPI Satellite Design Competition

4 teams

We partnered with the Society of Satellite Professionals International (SSPI) to create a competition for students to design a small communications satellite. SSPI provided our teams with mentors from the satellite industry to provide technical and project mentorship.

Lunar Rover Competition

11 teams

This year we launched our first Lunar Rover Competition in association with Thales Alenia Space UK, and supported by Airbus Defence & Space UK, RALSpace, and Oxford Space Systems.

The competition challenges teams to design, build, and test small rovers with the objective of driving into a 'lunar' crater, collecting a sample, and returning to the lander. 11 teams entered and passed the preliminary design review, and are busy working on their rovers in preparation for their critical design review, and the competition day at RALSpace in July.

“By having the opportunity through UKSEDS to gain exposure to the space industry I have been able to secure a fantastic graduate job.”

Adam Harris
Alumnus

Advocacy

Our advocacy programme aims to promote the views and concerns of students and young people within the space sector. In particular we push for greater support of students, and the involvement of students in the development of strategy and policy.

Advocacy has not been a key part of our activities in the past, and our objective for this year was to begin to change that.

Contributions to Policy

In November 2016, the UK Space Agency put out a call for ideas and evidence to help develop a new space strategy to implement the 2015 National Space Policy. Members of Executive Committee attended two stakeholder workshops, and submitted an official response advocating more engagement with students.

Our recommendations including the establishment of a sector HR working group with industry, student, and graduate representatives to discuss sector-wide recruitment and skills issues; increased effort in promoting the space sector to students from specialities beyond physics and engineering, who would otherwise end up in competing sectors such as finance and tech; and more support for skill-building opportunities such as competitions, internships, and undergraduate academic projects.

Representation of Students

We sent representatives to a number of events throughout the year, including STEM 50/50, focused on gender equality in the STEM sector; KPMG NextGen, discussing the impact of Brexit on the aerospace industry; Westminster Business Forum's conference on developing the UK space industry; and Policy-UK's forum on developing the UK's Civil Space Strategy

In many cases we were the only young people present, or the only representation of the space sector, and at every event we raised points about the space sector's skills shortages and the importance of student engagement.

Project Grants

Hybrid Rocket Engine

ICSEDS, our branch at Imperial College London, were awarded a £250 grant for the development of an HDPE/NOx hybrid rocket engine designed for a peak thrust of ~1kN and a burn time of 15s. The aim for this engine is to eventually sit in a rocket of their own design (another project) and be used for frequent launches.

Space Photography Platform

Southampton University Spaceflight Society were awarded a £225 grant in support of their project to create a gyro-stabilised platform to allow a high-quality DSLR to take long exposures of the stars.

Space Policy Day

CranSEDS received £200 in support for their Space Policy day, a 70-person event discussing legal issues surrounding the space industry and how they impact companies.



Outreach

Our outreach programme is focused on promoting space to the public, including primary, secondary, and parts of further education. We believe a good public understanding of space and its importance to life on Earth is vital to the growth of our space sector.

This year we attended 24 outreach events, reaching over 8000 students of all ages around the country. These included events at the Natural History Museum, the Royal Institution, the Farnborough Airshow, the UK Space Agency's Principia Schools Conferences, and dozens of schools and careers fairs as far afield as the Orkney Islands.

This expanded programme was enabled by an improvement in our recruiting of volunteers, and generous support from the UK Space Agency's Space for All grant scheme. We were awarded £4000 for our 2016-17 programme, and have increased that to a record £5850 for our 2017-18 programme.



Outreach Equipment

This year we invested in some new outreach equipment for our events, including VR headsets, robots, and bespoke UKSEDS colouring pages. We have worked hard to develop new activities for classrooms and fairs, and have written straightforward usage guidelines to allow any volunteer to take part in running these events.

Outreach Volunteers

We have created a new signup method for our outreach volunteers to make it quicker and easier for us to manage our events. This year alone we have had at least 20 outreach volunteers supporting events around the country. We are in the process of implementing a Space Ambassadorship scheme, to recognise the contributions of our volunteers to our work to promote space science and engineering to the public.

“It’s honestly one of the best things I’ve done with my life. It’s great meeting such different people.”

Alex Clarry
Volunteer



Operations

Our operational programme concerns our work 'behind the scenes' to enable our other principal activities. Without a motivated staff backed by effective systems we aren't able to achieve anything.

Membership & Alumni

Our emphasis this year was on expanding our membership beyond the traditional space disciplines of physics and engineering. For the first time we have computing and medicine societies affiliated with us, bringing our total branch count to a record 39.

We held our first meet-ups, aimed at bringing our members and alumni together in a social context beyond our annual conference. These were broadly successful, and we are keen to grow them in the coming year. We had a relaxed cocktail night and a friendly Italian meal with members old and new sharing their experiences.

Public Relations

Social media

Our social media audience continues to grow healthily, and is now just short of 7000. This year saw the launch of a separate Facebook page for SpaceCareers.uk, which sees very high engagement with its posts. Our goal with this second page is to reach out beyond our traditional audience.

Ecliptic

Ecliptic, our email newsletter, got a redesign over the summer, bring it in line with rest of our branding and improving the inboxes of our nearly 2000 subscribers.

Systems

As a remote organisation, we rely a great deal on effective systems for communicating and keeping track of everything. The tech sector's generous support for charities means the we are able to use professional software at no cost. This year we have set up instances of JIRA, a task management tool, and Confluence, a wiki, to help us keep better track of our work and create a reference resource we can rely on in the future.

We also developed a system of our own, called Cosmos, for managing our membership and branch databases, and tracking ticket sales for our events. This has improved our record keeping, and makes it much easier for us to get a clear picture of our members and events.

Partnerships

We are proud to be part of a supportive global space community. We continue to have good relationships with our sister SEDS organisations overseas, as well as EUROAVIA, the Space Generation Advisory Council (SGAC), the British Interplanetary Society (BIS) and the Society of Satellite Professionals International (SSPI).

SSPI

We are very pleased to begin a new partnership with the SSPI, who already work closely with our friends at SEDS-USA, and are keen to expand their presence in the UK. Several UKSEDS alumni are active members of SSPI, so this was a natural friendship.

Members of our Executive Committee met with SSPI Executive Director Robert Bell to organise the SSPI Satellite Design Competition, and also attended an SSPI UK board meeting in December, where they presented about our work and discussed areas for collaboration. We are excited to continue working together in the coming year.

SGAC

We collaborated with SGAC for the third year running to organise the Reinventing Space Careers Events at RISpace 2016 in London, and are already putting in plans for the 2017 event in Glasgow.

We are delighted that UKSEDS alumni Akash Trivedi and Graeme Taylor have been appointed SGAC National Points of Contact for the UK.



Finances

The 2015-2016 financial year was excellent, with an income in excess of £18,000 and an end of year balance on close to £7,000. Our end of year accounts show a loss of £1,258, but this is due to an outstanding debt of £1,000, which has since been paid, and the outstanding payment of our £4,000 Space for All grant from the UK Space Agency. This will be paid in arrears in February 2017, though most spending occurred in our 2015-2016 financial year ending in November 2016.

Our financial stability over the past few years has allowed us to invest more money into our members than ever before. This financial year we spent almost £20,000 on running events, supporting our outreach volunteers, training our staff, and supporting our branch's projects. Our biggest expense, as every year, was the NSSC, but thanks to our generous sponsors we were able to keep the ticket prices affordable, provide £1,200 of travel grants to branches travelling long distances, and make a surplus that will fund our activities throughout the coming year.

We are always looking to make sure we make best use of our money. This year we changed our Public Liability Insurance to a cheaper and more suitable package, and we are currently investigating our banking options to ensure that we continue to get the best value service possible. We aim to keep a reserve of at least one year's minimal operating costs.

Revenue and Expenditure (2011 - 2016)



UKSEDS

We are a registered charity no. 1158580

Our charitable objects are to advance education for the public benefit, by making a forum for the communication and exchange of ideas between students, educational establishments, industry and the general public; and to act as a resource for young people in the UK with an active interest in space, by providing advice and assistance to improve their knowledge base, skillsets, and hands-on experience

Our Trustees and Executive Committee are elected by the Membership in accordance with our Constitution, and plan our activities with regard to the Charity Commission's guidance on public benefit, our Objects, and our long term strategy.



Trustees

- Joseph Dudley (Chair)
- Robert Garner (Vice Chair)
- Ciara McGrath (Treasurer)
- James Telfer (Secretary)
- Portia Bowman
- Jeremy Nickless
- Ryan Laird

Executive Committee

- Joseph Dudley
- Robert Garner
- Ciara McGrath
- James Telfer
- Portia Bowman
- Trisha Saxena

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